

GP-302752

CENTRIFUGAL COMPRESSOR WITH CHANNEL RING
DEFINED INLET RECIRCULATION CHANNEL

ABSTRACT OF THE DISCLOSURE

A centrifugal compressor includes an annular inlet air recirculation channel having a smoothly variable cross section extending from a first slot at a forward end of the channel adjacent an inlet member to a second slot at a rearward end of the channel beyond an inlet end of a vaned compressor impeller. The channel is formed between an aerodynamic channel ring supported in a smooth annular recess formed in a compressor housing and the separate inlet member. The ring may be mounted by radial struts connected with the housing and located in an area of low momentum air flow. The channel ring and the channel recess may be machined or otherwise formed with smoothly variable surfaces prior to assembly of the ring into the housing. The channel may have a smoothly diminishing annular cross section for aerodynamically efficient air flow.